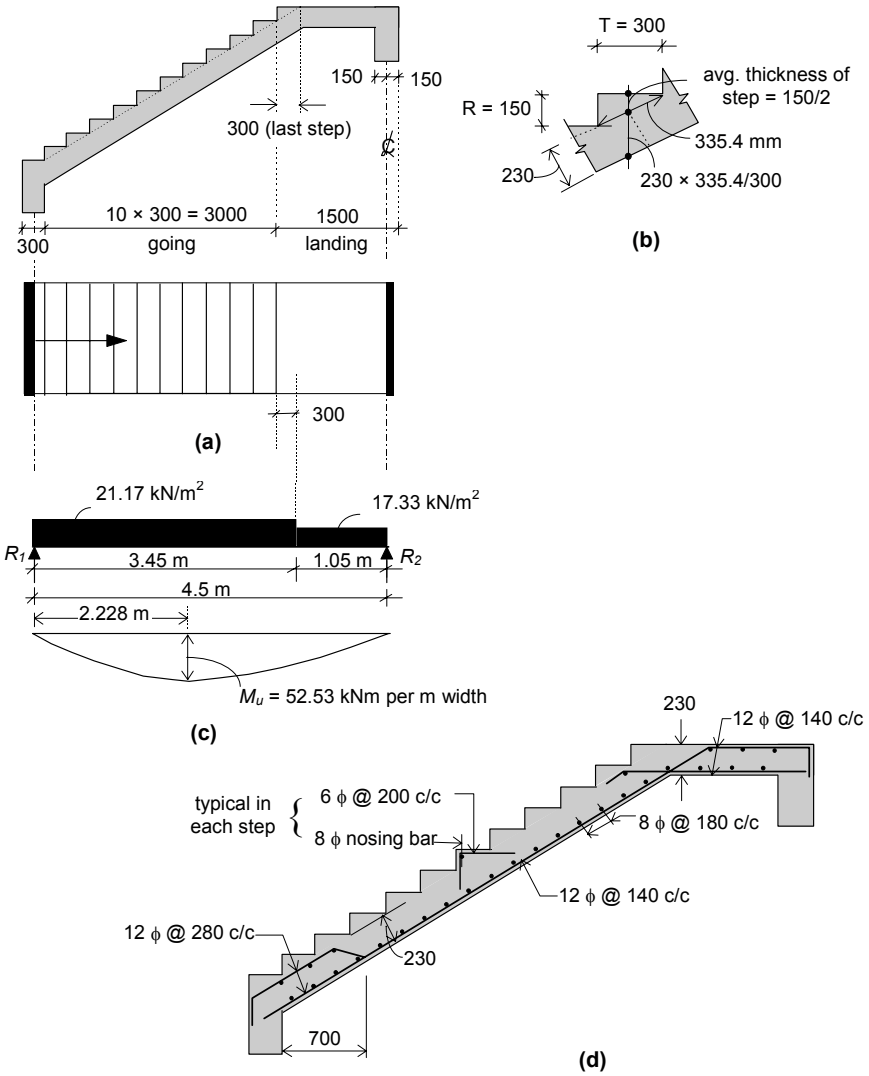

Fig. 12.12 Example 12.4

- *Main reinforcement*

$$R \equiv \frac{M_u}{bd^2} = \frac{52.53 \times 10^6}{10^3 \times 204^2} = 1.262 \text{ MPa}$$

Assuming $f_{ck} = 20$ MPa, $f_y = 415$ MPa,

$$\Rightarrow \frac{p_t}{100} \equiv \frac{A_{st}}{bd} = \frac{f_{ck}}{2f_y}\left[1 - \sqrt{1 - 4.598R/f_{ck}}\right] = 0.379 \times 10^{-2}$$